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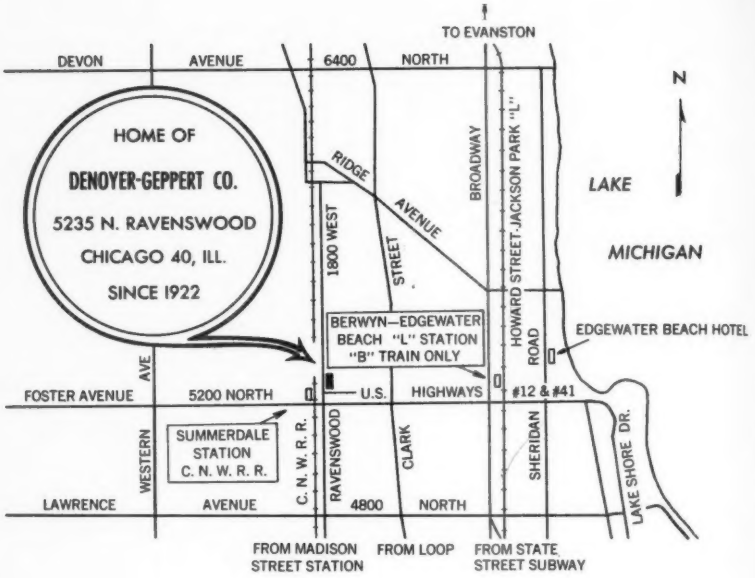

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THE ALTERNATIVE CHOICE IN ISOPLETH INTERPOLATION

J. Ross Mackay
University of British Columbia

A considerable number of isopleth maps are drawn from data which apply to rectangular statistical subdivisions. Just to mention four different examples, there are the thousands of rectangular land survey and census subdivisions in the United States and Canada; checkered patterns of rectangular subdivisions are used in many sampling surveys; rectangular city blocks frequently form the unit areas for urban mapping; and rectangular grids are often superimposed on topographic sheets for land slope analyses. When rectangular statistical subdivisions are used, the control numbers by which isopleths are interpolated will also be in a grid pattern if the subdivisions are arranged in parallel rows and columns.

Let us consider what is involved in interpolating a 20-isopleth line with reference to control numbers 25, 18, 33, and 16 which are arranged in a rectangle. (Fig.1-A). If "ticks" are inserted between the numbers

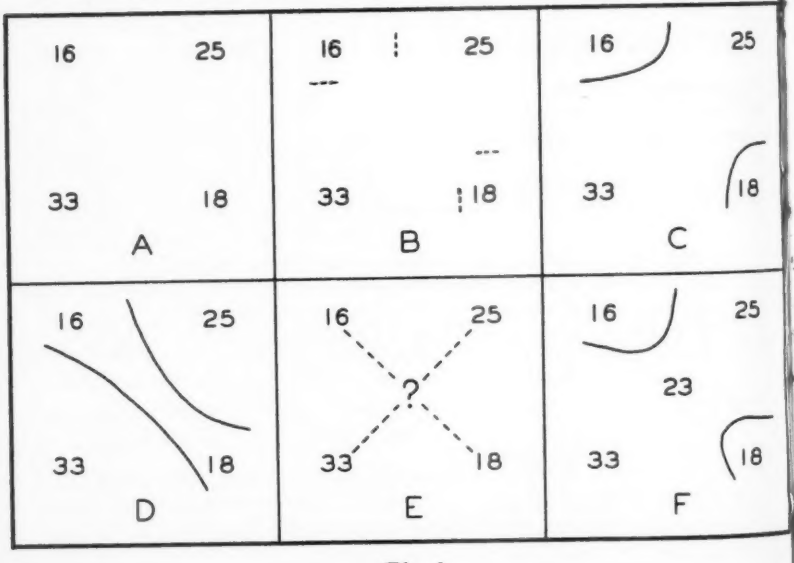


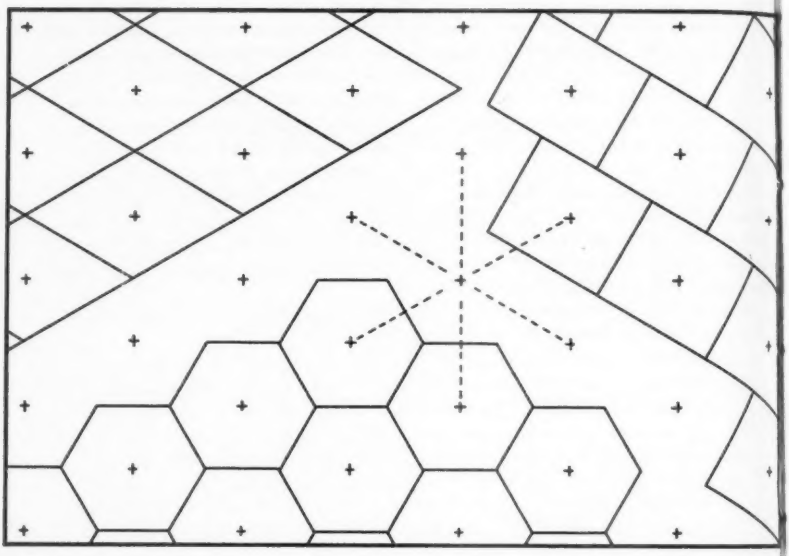
Fig. 1

as an aid in positioning the 20-isopleth line, there will be "ticks" proportionally placed between 25 and 18, 18 and 33, 33 and 16, and 16 and 25. (Fig. 1-B). It is apparent that two 20-isopleth lines are necessary to join the four "ticks" and they may be joined in two different ways. (Figs 1-C and 1-D). The alternative choice exists because the value at the intersection of the diagonals or center point is unknown. (Fig. 1-E). It may have a value either between 25 and 33 as in Fig. 1-C or between 16 and 18 as in Fig. 1-D, depending upon which control pair is used in establishing its value. The rule may be stated as follows: if control numbers are in a rectangular pattern, alternative choices usually arise in interpolating an isopleth line wherever two diagonally opposite control numbers are below the value of the isopleth line and the other two are above it.

At least three methods can be used in disposing of the vexatious alternative choice problem.

1. Under favorable conditions, a careful examination of the map data, supplemented where feasible by other relevant information, will be sufficient to establish which choice is the better. This is what happens when alternative choices arise in the interpolation of contours from spot-heights, because the cartographer can rely upon his topographic knowledge in disposing of the undesirable choice. How much less fortunate is the same cartographer when he must decide between alternative choices for isopleths which are far more erratic and unpredictable in their behavior than contours.
2. The underlying cause of alternative choices can be removed by choosing a pattern of control numbers without controversial center points. This can be done where the cartographer has freedom to design his own subdivisions, as he does in gridding off a topographic sheet in preparing a relative relief map. The hexagonal pattern of control numbers is probably the best one to adopt. The shapes of the statistical subdivisions need not be hexagonal in order for the control numbers to have that pattern. They can have other shapes, such as rhombic or rectangular; in the latter case, adjacent rows and columns are staggered. Isometric paper can be used in drawing the patterns. In Figure 2 there is an hexagonal pattern of control numbers upon which rhombic, rectangular, and hexagonal subdivisions have been drawn. Alternative choices do not occur with hexagonally distributed control numbers. Furthermore, it is much easier for neophyte and expert alike to draw smoothly flowing isopleth lines without a tendency to right angled bends when hexagonal patterns of control numbers are used instead of rectangular ones.

Fig. 2



3. Arbitrary values may be assigned to center points in order to eliminate alternative choices. This can be done in several ways. A suggested method is to use the average of the four control numbers for the value of their center point. In the example discussed earlier, it would be 23. (Fig. 1-F).

Hundreds to thousands of control numbers involving five to ten isopleth intervals are frequently used in the preparation of a single isopleth map. If the control numbers are arranged in a rectangular pattern, alternative choices are almost inevitable. They may aggregate several percent of the total number of control points used in drawing the map. Therefore, a careful consideration of the problems of alternative choices seems advisable whenever such isopleth maps are to be drawn.

ARE MOUNTAINS ENOUGH?

Edward L. Ullman
University of Washington

Standard atlas, wall, and base maps show land and water and generally political affiliation. In recent years as a "reform" relief has been added, but conspiciously absent is representation of other barriers, notably desert and semi-arid lands. Deserts in many places are as much of a barrier to movement as mountains and in most areas are even more of a hindrance to settlement.[1] A glance at transportation and population density maps readily confirms this.

Why only mountains are shown is somewhat of a mystery. Data certainly are available for climatic representation and are commonly used in special maps. Mountains may appear more tangible and artistic, but in terms of effect they are not more important. Is it perhaps because map making stems in large part from humid, temperate areas, particularly western Europe where relief is the main natural variable? Or are today's cartographers still trying to live down the trouble their ancestors got into 100 years ago when they labelled so much of the West "The Great American Desert"? Are they fearful that chambers of commerce in dry areas may resent the label? If so they need not fear; only historians remember the first error and dry lands don't have many chambers of commerce.

Whatever the explanation, the results are disastrous for general public understanding of the world and its problems. Many of you have no doubt heard Europeans, after they have made a transcontinental trip, express amazement at the emptiness of the United States; they then conclude that the United States could support a vastly increased population. There may be some truth in this, but the main reason for the relative emptiness of the western half of the United States is aridity. This fact is not known to many laymen, although it is elementary geographic knowledge; it is received with some disbelief by those who have heard of the Rocky Mountains, but have never seen arid and semi-arid land depicted on their every-day maps nor been familiar with such conditions at home.

1. For a more detailed example see the maps in Edward L. Ullman, "Rivers as Regional Bonds, The Columbia-Snake Example" Geographical Review, XLI, 1951, pp. 210-25.

Undoubtedly similar elementary misconceptions apply to the rest of the world, as Griffith Taylor discovered in Australia when he was criticised from Brisbane to Ballarat for correctly characterizing a large part of the central desert as "Empty Australia", and agriculturally useless. Mussolini may have appreciated the point, but probably figured some of his constituents would not, when he accepted an arid addition to Italy's African territory with the purported remark, "What do you think I am ----a collector of deserts?"

As another example I recall reviewing the "geographic" chapter of a forthcoming book on Utah wherein the mountains were characterized as the greatest handicap and no mention was made of the desert condition of much of the state. Actually the mountains should have been viewed as Utah's major asset. Were it not for the mountains, the whole state might well have been desert, to say nothing of the role of the mountains in providing irrigation water for the piedmonts, grass for grazing, forest for lumber, and even those minerals associated with folding and faulting.

In fact, if one were to divide the United States into only two "natural" regions, the division would be made, not at the abrupt Rocky Mountain wall, but out on the flat Great Plains, in the vicinity of the 100th meridian where precipitation to the west is insufficient for agriculture without irrigation. Such a line of course is in reality a zone, as is true for most "natural" boundaries, and varies from year to year or cycle to cycle of rainfall, as well as being blurred by dry farming practices and the shifting price of wheat and meat.

As a simple procedure, I urge that all general maps now showing relief also indicate desert and semi-arid areas as well. Two categories of aridity, one extreme the other partial, might be shown in two shades of gray or color; the intensity of the shading might well correspond approximately to the shading intensity used for high and low mountains respectively, with differentiation on the basis of color or symbol. Perhaps three categories could be used or even better a gradual thinning out of shades into humid areas utilizing air brush or some other technique.

Irrigated areas, since they are so productive, would quite properly be shown in the same or almost the same convention as humid lands. Here even many Americans might be educated if they saw the vast extent of our arid and semi-arid lands in relation to the limited past and possible future irrigation. The Nile corridor, to take another example, would

properly stand out in its crossing of desert North Africa.

Detailed specifications for the symbols could as readily be worked out as for other map conventions and would provide a new avenue for exercise of cartographic ingenuity. Since this is a proposal for general physical base or display maps, it is inappropriate to bring up still more complicated types of desirable maps at this point inasmuch as some form of standard land-water-relief map will persist and it is important that desert, semi-arid and perhaps one or two other limiting conditions be added to this standard. Jeppesen and Company of Denver have made an interesting and valuable move in this direction with their "natural color" maps showing the earth in generalized colors as it appears from the air. The tans and greenish tans of these maps correlate fairly well with arid and semi-arid climates although they are not specifically so labelled. Still other excellent maps such as Raisz's proposed Land Type maps attempt even more realistic depiction although they are not standard cartographic practice. The problem of representing deserts in black and white as graphically as mountains is more difficult, although not an insurmountable obstacle. In any case pictorial representation although desirable, is not necessary, just as it is not even possible for portrayal of political affiliation. The principal problem is simply to represent an intellectural fact and make a correct map, not a pretty one.

In some cases, extreme conditions are now shown by an ineffective light stipple as for example the most desert parts of the Sahara. Ice conventions on Greenland and Antarctica are also common.Regions too cold for crops or trees might also be separately distinguished although since these areas are generally near the poles the public can more readily infer their limitations than it can those of unmarked deserts. Reduction in use of the Mercator Projection has also resulted in these areas being cut down more nearly to their proper small extent in the world. Other extreme limiting conditions might be incorporated if cartographically possible, such as the Laurentian Shield of Canada, a vast rocky area, denuded of soil, supporting little save trees, and constituting a formidable (although not impassable) barrier to road or rail penetration.

For maps of areas such as England without desert or semi-arid conditions, the new conventions of course need not apply, although if they were used for the rest of the world, a demand might even arise in these relatively humid and temperate areas for comparable treatment, just as relief maps are now in demand for Iowa or Indiana!

To conclude: this simple and obvious reform is drastically needed to depict the world with even approximate reality, although practical ex-

ecution may be difficult and run counter to ingrained habits. Past conventions admittedly are a real part of all our map appreciation. For example, I dislike maps with North at the side or bottom instead of the top "where it belongs", yet I must agree with Robinson that North may well be placed elsewhere on many maps. Even general maps are made for the specific purpose of showing the most significant aspects of reality as well as possible, not merely to indicate water, landforms, and boundaries.

We, as geographers, cartographers or map publishers, therefore, are partly responsible for the erroneous conclusions people draw of the nature of the world and its regions. Representation of aridity and other limiting conditions should go along with improving methods for, and extending depiction of relief. In combination with new relief methods, aridity representation particularly would make possible a real advance in elementary map depiction. Standard maps should show significant barriers; by ignoring them maps become themselves barriers to learning.

A NOTE ON FACILITIES FOR GEOGRAPHIC RESEARCH IN LONDON

Donald R. Petterson and Howard G. Roepke

Each year since the War an increasing number of American geographers have gone to Great Britain, and particularly London, for formal training or independent research in geography. Although there is no language barrier to overcome in pursuing research in Great Britain, there are several pitfalls, disappointments, and delays which may hinder the unprepared person who is expecting to make a direct and rapid approach to research.

Most British libraries are unwilling to open their facilities completely without a letter of introduction from a person of authority. In the case of students or instructors who are officially affiliated with a recognized British university, such a letter of introduction may be obtained from the university officials. If, however, the visitor is not directly connected with a college or university, prior negotiations for letters of recommendation from recognized persons of authority are desirable. Although they may not be sufficient to secure library access, multiple copies of a letter from the visitor's university in the United States, attesting his bona fides, will be found useful. As a last resort, officials at the American Embassy in Grosvenor Square can sometimes be of assistance.

The following is concerned only with those libraries in which the authors have had personal experience. For a comprehensive directory of London libraries, see The Libraries, Museums and Art Galleries Year Book published by James Clark & Co. Ltd., London, or R.R.Bowker Co., 62 W. 45th Street, New York 19, N.Y.

The Royal Geographical Society, Kensington Gore, S.W.7. This is the best and most workable collection of geographic materials in London. Although it is small in comparison with the British Museum, the Royal Geographical Society Library is well equipped with maps, geographic and allied periodicals, standard reference works, and a large collection of material (usually of a secondary nature) on the British Commonwealth and Empire. The card catalogue system differs markedly from that in the American Geographical Society, and greater reliance must be placed on the reference librarian and on individual searching of the open shelves.

The British Museum, Great Russell Street, W.C.1. The British Museum is the largest repository of literature in Great Britain and is comparable to the United States Library of Congress. Although information on every conceivable subject is contained in the collections, because the facilities are cumbersome and the service relatively slow it is frequently easier to consult one of the smaller and more specialized libraries

for standard references. The map library of the British Museum contains a complete collection of British maps as well as most of the official colonial maps and all the standard world maps and atlases. Moreover, the collection of original historical documents is very complete and invaluable for research in historical geography.

Both the author and subject catalogues are contained in a series of bound volumes rather than card files. As the subject catalogue is arranged in a series of volumes according to date of acquisition rather than year of publication, a complete set of references on a given subject must be sought in several volumes. Since the call numbers in the subject catalogue are frequently incorrect, additional cross-checking in the author catalogue is necessary to ensure the correct call number. After the order is placed, an hour or more may elapse before the books are delivered to the reader's desk. A maximum of six books can be ordered in a single day which lasts from 8:30 a.m. until 4:40 p.m., but books to be used again the following day may be held at the main desk for quick access in the morning.

A reader's ticket is essential for entry to the Reading Room of the British Museum. Temporary admission can be obtained by presenting proper identification credentials at the main office. A reader's ticket, valid for one year, is granted only through a letter of introduction from a person of recognized authority or from the authorities of the college or university with which the student is affiliated. Although it is definitely not the standard procedure, if one needs special access to a particular kind of material it may be possible to arrange this through a letter written to the Keeper of Printed Books.

The Royal Empire Society, Northumberland Street, W.C.2. This library is useful for materials on various aspects of the British Commonwealth and Colonies and of particular value for its collection of comparatively obscure colonial publications, newspapers, journals, and gazettes. The card catalogue and open shelves are arranged according to the Library of Congress system. Since the Society is a private organization, a letter of introduction is necessary.

The Colonial Office Library, Downing Street, S.W.1. One of the best collections in London of books, maps, and periodicals dealing with and published in the British Colonies is found in this library. Although the library itself is not a receptacle for complete sets of colonial annual reports and Bluebooks, the librarians are willing to order such sets from the Public Records Office. The subject catalogue is similar to that in the British Museum and is arranged in a series of annual volumes according to date of acquisition.

The Colonial Office Library, Great Smith Street, S.W.1. Current official colonial documents and a limited number of standard references pertaining to the British colonies are found in this library.

The Public Records Office, Chancery Lane, W.C.2. This is the central repository of all official British Government and Colonial documents.

However, access to the library by Americans and non-British subjects must be obtained through the Embassy and British Foreign Office. Access has recently been made more difficult for both British and foreign workers, primarily for reasons of operating economy.

The Imperial Institute Library, Imperial Institute Road, S.W.7. Here is found a valuable collection of references on the natural resources of the British colonies. The reference librarians are particularly helpful in lieu of a subject catalogue.

The Meteorological Library, Harrow and Wealdstone, Middlesex. This is a major source of British and colonial meteorological and climatological data. The library is accessible from central London via the Underground transportation system.

Senate House Library, University of London, Montague Place, W.C.1. Standard references and periodicals as well as all University of London theses and dissertations are found in this library. The subject and card catalogues are arranged according to the United States Library of Congress system.

The individual libraries of the several colleges and schools of the University of London such as the London School of Economics and Political Science, Kings College, or University College, are primarily for the use of students and faculty affiliated with these institutions.

The Royal Institute of International Affairs, Chatham House, St.James Square, S.W.1.[1] This is one of the best libraries on the field of international relations in Britain. It has an excellent collection of books and pamphlets in addition to an extensive clipping file. Because the Institute is a private association, the library facilities are primarily for its members. Although non-British subjects cannot become members of the Institute, foreign scholars may gain access to the library if properly vouched for by a member.

Industrial and Commercial Sources of Information. For research in economic geography, the most useful sources of information may be industrial and trade associations. Many of the major industries are organized into such groups, whose primary function is the collection and dissemination of information, primarily statistical and technical, about the particular industry. In addition, there are commercial and agricultural organizations which serve similar functions. Besides having the latest and most authoritative information available, these organizations often maintain sizeable libraries of material pertinent to their activity. Excellent examples of these functions are found in the British Iron and Steel Federation on Tothill Street, W.1., which is the only authoritative source for information on the British iron and steel industry, and the British Iron and Steel Institute in Grosvenor Gardens, W.1. which maintains a large and complete library entirely concerned with the iron and steel industry.

1. Information on this library was supplied by Professor Malcolm J. Proudfoot, Northwestern University.

A prerequisite for obtaining information from these organizations is a considerable knowledge of the subject on which data are desired. Most of them have a minimum of staff, but a large job to do, and they are not sympathetic to vague or general inquiries. Some of these organizations will answer queries from the general public, but for wholehearted cooperation and detailed information the research worker is well-advised to seek an official introduction.

GEOGRAPHIC RESEARCH OPPORTUNITIES IN THE FIELD OF ECONOMIC DEVELOPMENT

Norton S. Ginsburg
University of Chicago

Economic development is a process; it is dynamic, not static. The question that arises constantly with regard to it is not only "where from?", but also "where to?". If it is asked at what points on this temporal continuum the geographer can best make his contribution, I should reply: "all along it, but most significantly in the present and future sectors." This implies that the geographer is competent to make some generalizations about the course of economic development and some predictions, or hypotheses about its future direction. This I believe to be true. The competent geographer has the ideas, tools, and experience to make substantial contributions to the understanding of the economic development process wherever it may occur.

The problem of initiating sustained economic development is little understood by economists and sociologists alike, although the latter are more modest than the former. To illustrate this assertion, I can point to the example of Japan, unique among the non-European societies, which has attained a remarkable level of development -- and no one really knows why. Conversely, there is the example of Spain, a country which attained the highest levels of political power, but was unable to make a successful transition to a modern industrialized state. In both cases, it seems clear that the developmental process is no mere matter of the organization of natural and fiscal resources, but is inextricably tied within a social and cultural matrix that still remains little known, whatever the claims of academicians.

The geographer, therefore, in dealing with economic development problems, past, present, or future, is not necessarily poaching on other specialists' preserves. In a very substantial sense, studies of the economic development process are studies of society as a whole, and to this study geography can be said to bring both a focus and a method. Underlying geographic study is the basic assumption that the localized association of phenomena is significant to society, and one way of dealing with social problems in the broadest sense, whether economic, political, or more narrowly cultural, is to study these localized associations as they occur in reality and as they are related to each other. Geographers are more apt, and perhaps better trained, to deal with those associations which have a direct and manifest relationship with the occupance of the surface of the earth, than with those that are more ephemeral. On this basis, I propose two widely separated fields of research which geographers might well cultivate

in connection with the study of economic development.

The first is that of resource evaluation. This may be the most fertile field through which geographers can become integrated into economic development research and action programs. Government agencies appear anxious to obtain the results of geographic research on resource evaluation problems, and often they are equally anxious to make use of the services of those geographers who have done the research itself. This is true even though they may not be aware that there is something specially geographical either in subject matter or in method about the report and findings. The geographer may be considered simply an "area" expert.

Resource evaluation is no simple process, it is not the same as resource inventory. Frank Keller has suggested some of the complexity of resource evaluation in his recent article in the January, 1953 issue of Economic Geography, "Resources Inventory: A Basic Step in Economic Development". Inventory is a first major step, both an inventory of "what is where", as well as an inventory of "how it is used". On the other hand, one of the major questions regarding economic development is the potentiality of indigenous resources, and this includes considerations regarding the possibilities for change in present utilization patterns. Potentialities for resource use must be considered in terms not only of the physical aspects of the problem, but also in terms of the subtle and much more variable context of cultural barriers and inclinations. At this point, a geographer might well be on somewhat uncertain ground as compared with the cultural anthropologist, but the geographer also possesses the major advantage of his prior study of what is essentially a unitary rather than a dual problem.

The second field of specialization is that of urban geography, especially with reference to the lesser developed regions of the world. One of the significant gaps in research on economic development is that of urbanization. It is generally recognized that the large city, especially the foreign-influenced or sometimes -built city in many lesser developed areas, is the center of the social, as well as economic forces, which provide part of that impetus to sustained economic development, which is as yet ill-defined. Indeed, there is some question whether economic development can take place at all without a minimal extent of urbanization. One of the key questions regarding this matter of urbanization involves the "changing functions of cities," in terms of both their internal organization and their external functional relationships to immediate hinterland, nation, region, and world. The number of urban studies outside the United States and Western Europe in which the "changing functional relationship" theme is emphasized is surprisingly small. Even so, geographers have a substantial head start over the other disciplines in this direction; in fact, so far as foreign areas are concerned, there is a virtual monopoly of the

problem in the geographic literature.

I do not mean to suggest that the routine sort of descriptive urban land use study is adequate. These studies should be functional analyses of the internal and external relations of cities. In effect, they must answer the question: How does the city perform and why? In what ways does it function differently from other cities, and how does this effect its significance to economic development in its varying hinterlands? Partial answers to these major questions may be obtained through analyses of internal urban organization and land use; of hinterland demarcation, traffic flow, and trade patterns; of occupation structure and labor force; of educational and cultural functions. All these aspects of cities have been dealt with by geographers, though mostly in reference to Western cities.

As an example of the sort of study I have in mind, I should like to refer to Edwin Munger's study on Kampala, Uganda, 21st in a series of 28 Research Papers of the Department of Geography at the University of Chicago. Many excellent urban studies have appeared in this series. This one, however, is the first to deal with a city in a recognizably underdeveloped region. In it, Munger skillfully unravels the complex of functional relationships which make Kampala significant in Uganda, in East Africa, in the Commonwealth, and beyond. In so doing, he has been able to assess the impact of the rising metropolis on the backward rural areas. At the same time he makes clear some of the distinctive characteristics which make Kampala East African and therefore different from similar cities in other parts of the world. This is only a pioneering study, but the relatively large demand for it indicates an interest which bodes well for future studies of the type. There is no reason why urban study of this sort should not prove to be one of the more fertile in the present course of geographic enterprise.

PROGRAM PRESENTED AT THE 49th ANNUAL MEETING BY THE AAG COMMITTEE ON ECONOMIC DEVELOPMENT

Lloyd D. Black, Chairman

Under the title "Geographers and Point Four" the Committee sponsored a discussion meeting attended by more than 200 persons on Tuesday evening, March 31, at the Cleveland sessions of the A.A.G. The purpose of the meeting was to briefly describe current activities of various U. S. and international agencies participating in economic development programs and to suggest ideas as to the relation of geography and geographers to these programs as a basis for open discussion. A "Preliminary Background Report" was distributed at the door.

The Chairman outlined the objectives of the meeting and presented a brief background sketch of technical cooperation and economic development programs, noting that, whereas the emphasis between 1941 and 1945 was on winning the war, it was on relief and reconstruction in the early postwar period; and that since 1947, economic development activities have become identified with the "cold war" objectives of building economic and military strength in order to promote economic and political "stability." He distinguished between the short-range, large-volume emphasis of ECA/MSA and the long-range, "low intensity" emphasis of TCA and mentioned some of the geographers who have been identified with these agencies.

In the absence of Walter Stoneman, who was to have reported on TCA, the Chairman mentioned four points that Dr. Stoneman had wished to make: 1) that the Point Four program was in many respects applied economic geography; 2) that the modest participation of geographers in economic development programs may be traced to their failure to "sell" themselves to high officials in the agencies concerned; 3) that geographers should spend more time at meetings of other professional organizations instead of communicating exclusively among themselves; and 4) that geographers must convince officials and administrators that they can handle practical as well as academic jobs.

Frank Keller, speaking in the place of Clarence Jones, reported on the current TCA project to survey the developmental possibilities of the area in Bolivia crossed by the Cochabamba-Santa Cruz road. He noted that economic development problems cannot be solved from academic study alone; that decisions have to be made on the basis of field investigations; that understanding of local attitudes and situations is a prerequisite for the success of a project; and that local personnel and facilities often can be used to good advantage. Keller commented that the

geographer's contribution lies in his ability to evaluate the interrelationships of various projects in over-all balanced development and that administrators with a technical background often posses a limited perspective of the broader problems with which they must deal. He warned that American personnel must avoid policy involvements in local situations and observed that UN technical assistance personnel could operate at higher levels of policy formulation. A more detailed account of Keller's experience in Bolivia appears in his article "Resources Inventory -- A Basic Step in Economic Development" Economic Geography, Vol. 29, No. 1, January 1953.

Shannon McCune spoke chiefly from his experience as acting chief of the ECA Mission in Indonesia. He observed that technicians ideally should possess four qualifications: 1) competence in their specialty 2) experience in government administration 3) knowledge of the language and area concerned and 4) understanding of local patterns of culture. He noted that few people possess this combination of qualifications and suggested that geographical training would aid the technician to do a better job. The ECA program in Indonesia was a short-term "impact" program designed to bolster the government in power. ECA worked through the Indonesian government agencies in supervising such fertilizer, public health, and engineering projects as would give immediate results, thereby strengthening the confidence of Indonesians in their government. Like Keller,McCune stressed the importance of psychological and cultural factors in the implementation of materialistic projects.

Hibberd Kline spoke from his experience as a Consultant to ECA/MSA on development projects in the dependent overseas territories. As a Consultant, he reviewed proposed projects, considered the feasibility of carrying them out, and analyzed the "repercussive" effects of a given project on the entire economy of the country in question. He concluded that the role of the geographer-consultant was to bring to bear the experience and methodology of geography to evaluate the worth and implications of both individual projects and country programs.

Wallace Atwood noted the limited participation of geographers in economic development programs and emphasized that geographers must initiate such participation. He commented on the increasing activity of the National Academy - National Research Council in liaison with national and international interdisciplinary advisory committees in the fields of science and economic development.

Norton Ginsburg stated that we must distinguish between two types of problems: 1) that of employment of geographers in official programs and 2) that of research -- of what geographers as scholars can do to throw light on the nature and problems of economic development. He discussed two of several possible fields for research: resource evaluation and urbanization.

The Chairman called attention to the remarks of John Orchard and Paul Phillips, quoted in the Committee's preliminary report, that discuss the role of the geographer in economic development programs.

After a brief intermission a lively discussion period covering a wide range of topics ensued for more than an hour. Carl Troll discussed water conservation and the tsetse fly as obstacles to economic development in Africa. Karl Pelzer stressed the need for field studies on land utilization, resources, and pioneer settlement in Southeast Asia. Preston James described plans for a resource training center in Brazil under the auspices of the Pan American Institute of Geography and History. Meredith Burrill asked how one determined the potential development of an area, and the Chairman mentioned several attempts to ascertain actual levels of development as an aid in determining the best projects with which to promote economic development. Philip Hauser noted that there was some confusion between the function of the scientist and the function of the "social engineer." Several questions dealt with the training desirable for younger geographers wishing to contribute to the Point Four program. Others concerned the benefits of bringing foreign technicians to the United States for further training. The question of liaison between geographers and government was raised and Wallace Atwood pointed out that the National Research Council fulfills this function.

The Cleveland session was intended to stimulate interest in the role of geographers and geography in economic development. The Committee believes that this purpose was adequately achieved. Subsequent meetings should deal with specific concepts, methods and problems in relation to geography and economic development.

It should be noted that since the Cleveland session new organizational changes have been made. By Executive Order, TCA has been transferred to MSA to form a new organization to be called the Foreign Operations Agency. It is expected that the concept of the Point Four program will be retained and that the present field activities of TCA and MSA will not be greatly altered. The main changes will involve economies in administration, both in the field and in Washington.

RESOLUTION

A Resolution Presented to the Association of American Geographers at its Annual Convention in Cleveland in March, 1953, and Approved by that Organization at its Business Session.

Whereas

Geography is not generally taught in high schools in the United States, a country now occupying a position of world leadership in which a knowledge of how humankind has occupied and apportioned the globe and utilized its resources is of paramount importance;

A more widely diversified and balanced curriculum for the future leaders of the nation in business and government and for good citizenship in general requires an acquaintance with the geography of our own country and of the world of which we are a part;

Young men and women who serve in our armed forces should have a better understanding of the position of our country and its capabailities, and should have some idea of what ways of living to expect in other countries when assigned overseas;

Our nation does not provide the majority of its young men and women with the necessary knowledge of the geography of the United States and that of other countries and of the world as a whole;

Therefore

Be it resolved that the Association of American Geographers further encourages the Department of Health, Education, and Welfare of the United States and the appropriate non-governmental agencies to call this serious gap in our education to the attention of the National Education Association, state educational associations, school boards, parents, and educators, and to facilitate remedial action.

DIVISIONS

Announcement of Divisional Meetings scheduled for 1953 will be found on pp. 27-28 of Volume V, Number 3, May, 1953.

EAST LAKES DIVISION

Two divisional field trips were held during the academic year. The first was a reconnaissance of Metropolitan Detroit on November 8, 1952. The group viewed projects of urban redevelopment such as the two new multi-million dollar expressways, slum clearance, and the new civic center under construction. This part of the trip was accomplished by chartered bus. Sixty-seven members participated. In the afternoon the group travelled to Amherstburg, Ontario, by motorcade. This part of the trip was devoted to problems of flood control and rural land use.

The second trip was in central Ohio, on May 23, 1953. A meeting of the division was held on the evening of May 22. At the meeting fifteen members exhibited color transparancies which in turn stimulated an informal discussion. The trip on the following day was made by chartered bus. Twenty-five people participated. Each person was given a physiographic diagram of Ohio, a resources map, a mimeographed atlas of eight maps on land use for the three counties that the traverse covered, and an itinerary keyed to the traverse map. Much of the preparation for this trip was done by Aubrey Diem, a Wayne student, who will pursue work on a master's degree at Clark University next fall.

In the fall, probably late September, the division will have a field trip and meeting in the Sandusky Bay area of Ohio. That trip will also be by chartered bus.

MIDDLE ATLANTIC DIVISION

A meeting was held on June 17 at which George Beishlag, Luther Gulick and David Naley presented an illustrated program on Land Use Mapping in Puerto Rico. All three speakers participated in the Puerto Rico Rural Land Classification Program of 1950-51. An exhibit of representative maps and map materials was displayed.

Approximately 45 persons enjoyed the Spring Field Trip on May 24, to the battlefield and museum at Manassas; the agricultural center of Culpepper where the County Farm Agent accompanied the group on a tour of the city; Charlottesville including the University of Virginia campus and the "estate farms" which are reactivated old southern estates; Jefferson's home at Monticello; and the national museum at Fredricksburg. The climax of the trip was the evening lunch and social hour that was enjoyed before returning to Washington.

NEW ENGLAND DIVISION

The annual fall meeting will be held at Dartmouth College, Hanover, New Hampshire, October 3 and 4. The program will consist of a field trip and a report on Northern Studies at Dartmouth.

NEW YORK METROPOLITAN DIVISION

Adelbert K. Botts, Head of the Department of Geography, State Teachers College, Trenton, New Jersey, was elected Chairman of this Division at a meeting held at the plant of the C.S.Hammond Company, Maplewood, New Jersey. Other newly elected officers are: Vice-Chairman: William L. Thomas Jr., The Wenner-Gren Foundation, New York; Secretary: Mrs. Rose S. Kiesler, Hunter College, New York; Treasurer: Miss Ena L. Yonge, American Geographical Society, New York; Councilor: William A. Briesemeister, American Geographical Society, New York.

The last meeting was held at the Lamont Geological Laboratories of Columbia University at Palisades, New York, on the evening of June 3.

AAAS - SECTION E - NEW ENGLAND DIVISION MEETINGS DECEMBER 28-30, 1953

Four sessions of special interest to geographers are being planned for the meetings of Section E (Geology and Geography) of the American Association for the Advancement of Science and the New England Division of the AAG at Boston, December 28-30. Geographers, geologists and others will contribute invited papers and discussion to a two-session symposium on Industrial Water. A one-session symposium on the Metropolis is being organized by Victor Roterus. A two-session discussion of Economic Problems of New England will be sponsored jointly with Section K (Social Sciences). One half-day session has been scheduled for contributed papers in geography, and there will be several geology sessions. Those desiring to present papers at the general geography session should send the titles and abstracts to Professor George R. Rumney, (Chairman of the New England Division) at the University of Connecticut, Storrs, Connecticut, by August 15.

NEWS FROM GEOGRAPHIC CENTERS

NORTHWESTERN UNIVERSITY

During the Spring Quarter Clyde F. Kohn submitted a technical report on his Navy project, entitled, "An Essay Key for the Photoidentification of Farm Crops at Several Intervals During the Growing Season in Northern Illinois." Dr. Kohn accompanied Donald R. Petterson and Jack Bradley to the meetings of the Illinois Geographical Society and the Illinois Academy of Science held in Macomb, Illinois. Mr. Bradley read a paper on "Problems Confronting Unincorporated Urban-Fringe Settlements," and Dr. Kohn reported to the society on the activities and plans of the Illinois Curriculum Program.

During the Summer Quarter the annual Geography Field Course will be held at Platteville, Wisconsin, between July 27 and August 29, under the direction of Donald R. Petterson and Malcolm J. Proudfoot. Dr. Kohn will deliver two lectures for the Social Science Foundation, University of Denver on July 21 and July 23 on the general topic of the influence of geography on our thinking. The lectures are a part of a series being developed around the topic: "How do we make up our minds on current issues?"

E.C.Willatts, Senior Geographer of the British Ministry of Housing and Local Government (formerly the Ministry of Town and Country Planning), will conduct a six weeks' lecture course on Maritime Europe, with emphasis on the British Isles. During the Thirties Dr. Willatts took a major part, as principal assistant to L. Dudley Stamp, in the development and successful completion of the Land Utilization Survey of Britain. Subsequently Dr. Willatts served as the British geographer on the staff of the Anglo-American Committee of Inquiry into the problems of Palestine. His present work is in the field of regional planning as well as in the production of the ten-inch series of maps covering a number of major geographical conditions of Britain.

WAYNE UNIVERSITY

During the past academic year the department of geography was given a field trip fund amounting to $800. The administration recognized the fact that the field is the geographer's laboratory and that the university should assume part of the financial responsibility of getting the student into the field. This realization has followed on the heels of an effective program of field trips. The fund reimburses students and staff members for mileage. It also pays for housing and food costs for the staff on field trips, and in some instances pays for chartered bus service and topographic maps.

BIHAR GEOGRAPHICAL SOCIETY

At a group meeting held in the Department of Geography, Patna University on May 9, 1953 it was decided to form a geographical society called the Bihar Geographical Society. The objects of the Society are to encourage interest in geography; to train public opinion in the value of geographical studies to the country; to foster research; to establish a library of books, periodicals and maps; and to prepare geographical materials on Bihar based on field studies essential for economic development and planning in the State. The Society has undertaken to publish a quarterly geographical journal containing original materials and results of research work.

The following persons were elected as officers of the Society for the year 1953. President: Dr. P. Dayal, Head, Department of Geography, Patna University; Secretary and Treasurer: Dr. S.A. Jamid, Head, Department of Geography, Patna College; Assistant Secretary: P.P. Karan, Patna University; Executive Committee: Ram Prabesh Singh, Ranchi College; Bhubneshwar Prasad, Gaya College; D. Chatterjee, Nalanda College, Sahdeo P. Sinha, Arrah College; J. Sah, Madhubani College; Mother Tertitia, St. Xaviers College, Ranchi; P. N. Verma and Ram Sakal Sinha, Patna. Editorial Board: Dr. S.C. Chatterjee, Chairman, E. Ahmad, Secretary, P. Dayal, S.A. Majid, Adaya Saran, P. P. Karan, S. M. Karimi, Members.

Membership in the Society is open to all who have an interest in geography including institutions, Colleges, Universities, Libraries etc. Membership is of four types. Ordinary members pay 8 Rupees annually plus an entrance fee of 2 Rupees at the time of first enrollment; Student members 1 Rupee and Life members 100 Rupees. Honorary members will be elected by the Executive Committee from among persons distinguished for their contribution to geography. Members are entitled to the use of the Library, to admission to all lectures, and to the quarterly journal.

Manuscripts are invited from foreign geographers for publication in the journal and may be addressed to the Editor, Geographical Quarterly, Department of Geography, Patna University, Patna 5, Bihar, India. Enquiries for the purchase and exchange of journal and membership may be addressed to the Secretary, Bihar Geographical Society, Department of Geography, Patna University, Patna 5, Bihar, India.

PERSONAL NEWS

J. EDWIN BECHT has been appointed Assistant Professor at Indiana University, Bloomington, Indiana, for the academic year 1953-54.

JOHN A. BRADLEY, Resident in Research in the Department of Geography at the Northwestern University, has received his Ph.D. degree from that institution and has accepted an appointment as Assistant Professor at the University of Pittsburgh.

S. EARL BROWN Jr., has been appointed Teaching Associate at Indiana University, Bloomington, Indiana, for the academic year 1953-54.

SAUL B. COHEN has been appointed to the Department of Geography at Boston University, Boston, Massachusetts.

LUTHER H. GULICK Jr., has accepted a teaching appointment at the Winona State Teachers College, Winona, Minnesota, for the academic year 1953-54.

GEORGE H. T. KIMBLE has resigned as Director of the American Geographical Society to head a project of the Twentieth Century Fund to study Africa south of the Sahara and north of the Union of South Africa. The project will begin about September 1 with an examination of pertinent literature in this country and investigators will move to Africa in 1954. After a three-year study, the results may be presented in an atlas of African resources, a series of economic summaries for the non-self-governing territories, and a comprehensive general report. (New York Times, 5/18/53 p.C5)

GEORGE R. RUMNEY, University of Connecticut, is planning to spend two months in Quebec and Labrador, continuing a study of population trends on the Canadian Shield. He has received a grant for this purpose for the second time from the American Academy of Arts and Sciences.

JOHN B. APPLETON died on June 23, while serving as Intelligence Coordinator, Office of Intelligence Research, Department of State. He had previously directed the Northwest Regional Council, Portland, Oregon, and served as Chief of the Geographic Subdivision, Far East Division, Research and Analysis Branch of the Office of Strategic Services.

EDWARD N. TORBERT died May 1 of bulbar poliomyelitis, while serving as Chief of Operations for the Helmand Valley Point Four project in Afghanistan. He had previously served as a geographer in the Columbia Basin project and with the Reclamation Bureau at Boise, Idaho.

ANNOUNCEMENTS

HONORS CANDIDATES

In accordance with the Council's recommendation of August 6, 1952, members are invited to submit to the Chairman of the Honors Committee, Edward Espenshade Jr., Department of Geography, Northwestern University, Evanston, Illinois, the names of persons whom they consider eligible for special recognition. Names must be submitted before October 15, 1953.

Section 2 of the By-Laws of the Constitution provides: "The Association shall encourage meritorious achievements in geography by awarding honors annually in special recognition of outstanding contributions toward the advancement or welfare of the profession in that year, or culminating in that year. The contributions might be in research, applied research, writing, teaching, committee work, administrative work, collaborative work with non-geographers, or in other aspects of geographic professional work. Recognition may take the form of grants for further advancing or implementing the contributions already made, citations, medals, an annual honor roll or placque, or other form appropriate to the purpose of such recognition."

Nominations to the Honors Committee should be supported by statements of the nature and significance of the contributions of the nominees.

UNITED NATIONS COMPLETES NEW MAP OF AFGHANISTAN

A new map of Afghanistan, compiled by United Nations cartographers from publications in the map collection in the United Nations Library and from field research conducted in cooperation with the Government of Afghanistan, was presented to Ambassador Mohammed Kabir Ludin, Permanent Representative of Afghanistan to the United Nations, by Hugh L. Keenleyside, Director General of the United Nations Technical Assistance Administration on April 30, 1953.

Drawn to the scale of 1:2, 000,000 (approximately 32 miles to the inch) and containing over 2000 place names, this map of Afghanistan is colored in seven different shadings representing altitudes ranging from sea level to more than 15,000 feet. Symbols have been included to indicate towns with populations of 5,000 or more and road distances are shown in kilometers.

UNESCO AUTHORIZES STUDY OF COASTAL DESERTS

An immediate special study of desert areas bordering on the sea has been authorized by the United Nations Educational, Scientific and Cultural Organization's Advisory Committee on Arid Zone Research. A grant of $2,000 was awarded to the International Geographical Union for the collection and mapping of accurate present-day information on those areas. The grant will support part of a larger project of the Arid Zone Commission of the IGU under the direction of Dr. Peveril Meigs, of Washington, D.C., chairman of the Commission.

A SUGGESTION

Franklin R. Stern

About this time of year the libraries all over the country which subscribe to the Current Geographical Publications of the American Geographical Society are receiving the Indexes to same. When the libraries bind the issues of the CGP, they usually remove the gray covers which are on the individual issues. For the past two years I have been working part time in the branch library housing the geographical material on this campus. When the CGP are sent to be bound, I have asked the Librarian to give me the gray covers. These I have distributed to my fellow graduate students, and anyone interested, for the purpose of helping them to set up their own geographic files on a rational and workable basis.

POSITION OPPORTUNITIES

THE FLORIDA AGRICULTURAL & MECHANICAL COLLEGE at Tallahassee, Florida, needs a Negro staff member with a master's degree in Geography. Applications should be addressed to

Professor J.W.Riley,
Department of History and Geography,
Florida Agricultural & Mechanical College,
Tallahassee, Florida.

THE ALABAMA STATE COLLEGE FOR NEGROES at Montgomery, Alabama, is seeking a staff member with at least a master's degree in Geography. Applications should be addressed to:

President H. Councill Trenholm,
Alabama State College for Negroes,
Montgomery, Alabama.

OREGON STATE COLLEGE at Corvallis, Oregon, has several graduate assistantships for outstanding students seeking a master's degree in Geography. Letters of inquiry should be addressed to:

Professor S. Granville Jensen, Chairman,
Department of Geography,
Oregon State College,
Corvallis, Oregon.

McGILL UNIVERSITY, Montreal, invites graduates in geography or meteorology interested in registering for a Ph.D. to apply for a graduate assistantship tenable September 1, 1953 - August 31, 1954 at $2,000 minus annual tuition fees of $300. Duties consist of helping in meteorological observations at the McGill Observatory and of looking after the photographic and cartographic needs of the department. Applications should be addressed to:

The Chairman,
Department of Geography,
McGill University,
Montreal, Canada.

FULBRIGHT AWARDS 1945-55

Competition for Fulbright Awards for University lecturing and post-doctoral research are now available for areas in Europe, the Near East, Japan and Pakistan. Application forms and additional information may be obtained from:

Conference Board of Associated Research Councils
Committee on International Exchange of Persons
2101 Constitution Avenue, Washington 25, D.C.

THE AUSTRALIAN NATIONAL UNIVERSITY

Research Scholarships

Applications are invited for research scholarships with an initial tenure period of two years. Applicants should be postgraduate students with research experience but applications may also be considered from others with comparable experience or training. The value of a scholarship is $1400 per annum with an allowance of $334.00 for married scholars with one dependent child, and $112.00 for each additional child. It has been ascertained that it would be possible to live in Canberra on $1400 per year, although not luxuriously. No restrictive laws regarding employment of non-nationals exist and it is understood that secretarial or similar work usually found in a capital city would be available for wives.

The University will make a contribution not exceeding $167.00 towards a scholar's fare to Canberra, but not for dependents, and a similar maximum allowance for his return fare. Third-class single fare from New York to Brisbane is $450.00.

Applications should be submitted to the Registrar of the Australian National University, Box 4, G.P.O., Canberra, by August 31, 1953. Awards will be announced at the end of October, 1953 and successful scholars will be expected to commence their studies in Canberra in March, 1954.

Further particulars and application form may be obtained from the following addresses:

The Australian Embassy,
2941 Massachusetts Avenue,
Washington, D.C.

The Australian Consulate-General,
63 International Building,
Fifth Avenue, New York 20, New York

The Australian Consulate-General,
296 Sansome Street,
San Francisco 4, California

The Office of the Australian High Commissioner,
5th Floor, Royal Bank Chambers,
100 Spark Street,
Ottawa,
Canada

WANTED - ANNALS

The following issues of The Annals are now out of print. Requests have been received from libraries, particularly of foreign universities, as well as from individuals, both in the United States and abroad, for suggested sources from which they might be obtained. Any members who possess these issues and would be prepared to sell or donate them so that they are available to students and scholars who now need them, are requested to send them to the Central Office, The Library of Congress, Washington 25, D.C., and state any specific wishes with regard to distribution.

1922, Volume 12 - All four issues
1923, " 13 - No. 2 (June)
1924, " 14 - Nos. 1, 2, 4, (March, June, December)
1925, " 15 - No. 3, (September)
1927, " 17 - Nos. 2, 4, (June, December)
1928, " 18 - Nos. 1, 3, (March, September)
1929, " 19 - No. 3, (September)
1930, " 20 - No. 2, (June)
1931, " 21 - All four issues
1932, " 22 - Nos. 1, 2, 3, (March, June, September)
1933, " 23 - No. 2, (June)
1935, " 25 - No. 3, (September)
1936, " 26 - No. 4, (December)
1937, " 27 - Nos. 2, 3, (June, September)
1938, " 28 - Nos. 1, 4, (March, December)
1939, " 29 - All four issues
1940, " 30 - All four issues
1941, " 31 - Nos. 1, 2, (March, June)
1945, " 35 - All four issues

NEW PUBLICATIONS

De La Science Géographique Yougoslave, B.Z.Milojević. An informative summary in French of the history and status of Geography in Yugoslavia was recently published by B.Z.Milojević in Geographica Helvetica, Heft 2, 1952, pp. 141-145. He traces geography in the universities from Petar Matković (1830-1898) to post World War II staffs in the leading universities. There is also a concise review of the geographical societies in Yugoslavia and the principal works of Yugoslav geographers, published in German and French.

John E. Kniffen, Studies in World Economic Geography, Thomas Y. Crowell Co., New York, 1952, 11 x 16 1/2 in., $1.95. This is a workbook for college students of Economic Geography. It consists of 35 exercises, each consisting of the plotting of certain information on an outline map provided for that purpose, and the answering of the questions. The exercises are keyed primarily to World Economic Geography, 1915, by Renner, Durand, White and Gibson, but they would also be useful with other post World War II texts in this field.

L.F.Thomas and R.M.Crisler, A Manual of the Economic Geography of the United States, Educational Publishers, Inc., 122 N. Seventh St., St. Louis, Mo., 1953, $4.50. This manual includes textual material, census statistics and maps for the course in Economic Geography of the U.S. at Washington University, and for others who may find it useful. It may be used with or without a textbook, or as a reference work. It gives pertinent information on 52 major trading areas in the U.S., presents each trade area on a separate map, and contains a wealth of bibliographic source references.

Atlas of Pacific Northwest Resources and Development, J.K.Gill Co., 408 S.W. Fifth Avenue at Stark, Portland 4, Oregon, 1953, $1.75. With 71 new maps and 45,000 words of text by 23 members of the Oregon State College staff, this atlas presents a current appraisal of the basic resources and industries of the U.S. Pacific Northwest, including landforms, climate, soil, forests, agricultural land use, minerals, power, fisheries, transportation, industries, recreation resources and population. The atlas was partly sponsored by a grant from the Ford Foundation.

Die Erde, Zeitschrift der Gesellschaft Fur Erdkunde Zu Berlin, No. 2, 1953. This issue is devoted entirely to German translations of articles by American geographers which have appeared in American geographic journals.

ADDRESS CHANGES

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WEBB, Robert M., 309 Cleveland Avenue, Hamilton, Ohio.

WILLIAMS, Henry G. Jr., 1 Pinnacle Road, Sauquoit, New York.
WONDERS, William C., Department of Political Economy, University of Alberta, Edmonton, Alberta.
WRIGLEY, Robert L. Jr., 4810 Silver Hill Road, Washington 23, D.C.

THE NATURE OF GEOGRAPHY

Richard Hartshorne

Copies of the 4th edition may be obtained from the Central Office, The Library of Congress, Washington 25,D.C.The Price is $2.00 plus 20¢ for handling in the U. S. and 25¢ for handling in other countries.

In order to aid students, as in the past, this volume is published by the Association and sold at cost, with no royalties to the author.

AMERICAN GEOGRAPHY - INVENTORY & PROSPECT

This book will be available in late 1953 or early 1954. Advance orders are being accepted at the Central Office, The Library of Congress, Washington 25, D.C. The price is $6.00.

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